6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 1, 2, 20, 22, 24, 27, and 90

[WT Docket No. 10-4; FCC 13-21]

Signal Booster Rules

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) amends its rules concerning signal boosters for consumer and industrial use in effort to enhance wireless coverage for consumers, particularly in rural, underserved, and difficult-to-serve areas by broadening the availability of signal boosters while ensuring that boosters do not adversely affect wireless networks.

DATES: Effective **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, except for amendments to §§ 1.1307(b)(1), 20.3, 20.21(a)(2), 20.21(a)(5), 20.21(e)(2), 20.21(e)(8)(i)(G), 20.21(e)(9)(i)(H), 20.21(f), 20.21(h), 22.9, 24.9, 27.9, 90.203(q), 90.219(b)(1)(i), 90.219(d)(5), and 90.219(e)(5), which contain information collection requirements that are not effective until approved by the Office of Management and Budget ("OMB"). The FCC will publish a document in the Federal Register announcing the effective date for those sections.

FOR FURTHER INFORMATION CONTACT: Joyce Jones, Mobility Division, Wireless Telecommunications Bureau, (202) 418-1327, TTY (202) 418-7233.

SUPPLEMENTARY INFORMATION: This is a summary of the Federal Communications Commission's Report and Order (R&O), in WT Docket No. 10-4, FCC 13-21, adopted February 20, 2013, and released February 20, 2013. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Center, 445 12th

Street SW, Room CY-A257, Washington, DC 20554, or by downloading the text from the Commission's website at http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0220/FCC-13-21A1.pdf. The complete text also may be purchased from the Commission's duplicating contractor, Best Copy and Printing, Inc., Portals II, 445 12th Street, SW, Suite CY-B402, Washington, DC 20554. Alternative formats are available for people with disabilities (Braille, large print, electronic files, audio format), by sending an e-mail to <FCC504@fcc.gov> or calling the Consumer and Government Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY).

1. In the R&O, the Commission adopts new technical, operational, and registration requirements for signal boosters. The new rules create two classes of signal boosters – Consumer and Industrial – with distinct regulatory requirements outlined below.

2. Consumer Signal Boosters are designed to be used "out of the box" by individuals to improve their wireless coverage within a limited area such as a home, car, boat, or recreational vehicle. Consumer Signal Boosters will be authorized under provider licenses subject to certain requirements. Specifically, subscribers must obtain some form of licensee consent to operate the booster; register the booster with their provider; use a booster that meets the Network Protection Standard and is FCC certificated; and operate the booster on a secondary, non-interference basis and shut it down if it causes harmful interference. Consumers may continue to use existing signal boosters provided they (1) have the consent of their provider, and (2) register the booster with that provider. The Commission will conduct consumer outreach to educate consumers, public safety entities, small businesses, and others about our new regulatory framework

3. Industrial Signal Boosters include a wide variety of devices that are designed for installation by licensees or qualified installers. These devices are typically designed to serve multiple users simultaneously and cover larger areas such as stadiums, airports, office buildings, hospitals, tunnels, and educational campuses. Industrial Signal Boosters require an FCC license or express licensee consent to operate, and must be appropriately labeled. The R&O also revises

technical and operational requirements for duly licensed part 90 Private Land Mobile Radio (PLMR), non-consumer signal boosters.

4. We establish a two-step transition process for equipment certification for both Consumer and Industrial Signal Boosters sold and marketed in the United States. First, on the release date of this R&O, we will no longer accept applications for equipment certification of Consumer or Industrial Signal Boosters that do not comply with our new rules and will cease certification of devices that do not comply with our new rules. Second, on or after March 1, 2014, all Consumer and Industrial Signal Boosters sold and marketed in the United States must meet our new requirements.

I. PROCEDURAL MATTERS

A. Paperwork Reduction Act Analysis

5. This document contains modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It has been submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection requirements contained in this proceeding. In addition, the Commission notes that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), it previously sought specific comment on how it might further reduce the information collection burden for small business concerns with fewer than 25 employees.

6. In the present document, the Commission assessed the effects of the policies adopted in this R&O with regard to information collection burdens on small business concerns, and find that these policies will benefit many companies with fewer than 25 employees because the rules we adopt should provide small entities with access to the coverage enhancing benefits of signal boosters that do not harm wireless networks. In addition, we describe below impacts that might affect small businesses, which includes most businesses with fewer than 25 employees.

B. Report to Congress

7. The Commission will send a copy of this R&O in a report to Congress and the Government Accountability Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

C. Final Regulatory Flexibility Analysis

8. As required by the Regulatory Flexibility Act of 1980, as amended (RFA), an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the Notice of Proposed Rule Making (NPRM) in WT Docket 10-4, at 76 FR 26983, May 10, 2011. The Commission sought written public comment on the proposals in the NPRM, including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.

Need for, and Objectives of, the Report and Order:

9. In the R&O the Commission adopts rules and policies that will enhance wireless coverage for consumers, particularly in rural and underserved areas, by broadening the availability of signal boosters while ensuring that boosters do not adversely affect wireless networks. Mobile voice and mobile broadband services are increasingly important to consumers and to our nation's economy. While nearly the entire U.S. population is served by one or more wireless providers, coverage gaps that exist within and at the edge of service areas can lead to dropped calls, reduced data speeds, or complete loss of service. Robust signal boosters can bridge these gaps and extend coverage at the fringe of service areas. Signal boosters are particularly useful in rural and difficult-to-serve indoor environments, such as hospitals. Signal boosters can also improve public safety communications by enabling the public to connect to 911 in areas where wireless coverage is deficient or where an adequate communications signal is blocked or shielded. In short, because signal boosters represent a cost-effective means of improving our nation's wireless infrastructure, the rules the Commission adopts today should lead to more robust service for many Americans at home, at work, and on the road.

Summary of Significant Issues Raised by Public Comments in Response to the IRFA:

10. There were no comments that specifically addressed the IRFA. Nonetheless, we have considered the potential impact of the rules adopted herein on small entities, and conclude that such impact would be minimal, in terms of measurable economic costs associated with compliance with the rules.

Description and Estimate of the Number of Small Entities to Which Rules Will Apply:

11. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted. The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).

12. Small Businesses, Small Organizations, and Small Governmental Jurisdictions. As of 2009, small businesses represented 99.9% of the 27.5 million businesses in the United States, according to the SBA. See SBA, Office of Advocacy, "Frequently Asked Questions," available at http://web.sba.gov/faqs/faqindex.cfm?areaid=24 (last visited Dec. 11, 2012). Additionally, a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field." See 5 U.S.C. 601(4). Nationwide, as of 2007, there were approximately 1,621,315 small organizations. See the INDEPENDENT SECTOR, THE NEW NONPROFIT ALMANAC & DESK REFERENCE (2010). Finally, the term "small governmental jurisdiction" is defined generally as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand." See 5 U.S.C. 601(5). Census Bureau data for 2007 indicate that there were 89,527 governmental jurisdictions in the United States. See U.S. CENSUS BUREAU,

STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, Table 427 (2007). We estimate that, of this total, as many as 88,761 entities may qualify as "small governmental jurisdictions."[1] Thus, we estimate that most governmental jurisdictions are small.

13. Wireless Telecommunications Carriers (except satellite). This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services. See http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517210&search=2007%20NAICS%20Search. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees. See 13 CFR 121.201, NAICS code 517110. Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer, and 44 firms had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities that may be affected by our actions. See http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-

[1] The 2007 U.S Census data for small governmental organizations are not presented based on the size of the population in each such organization. There were 89,476 local governmental organizations in 2007. If we assume that county, municipal, township, and school district organizations are more likely than larger governmental organizations to have populations of 50,000 or less, the total of these organizations is 52,095. If we make the same population assumption about special districts, specifically that they are likely to have a population of 50,000 or less, and also assume that special districts are different from county, municipal, township, and school districts, in 2007 there were 37,381 such special districts. Therefore, there are a total of 89,476 local government organizations. As a basis of estimating how many of these 89,476 local government organizations were small, in 2011, we note that there were a total of 715 cities and towns (incorporated places and minor civil divisions) with populations over 50,000. CITY AND TOWNS TOTALS: VINTAGE 2011 – U.S. Census Bureau, *available at* http://www.census.gov/popest/data/cities/totals/2011/index.html. If we subtract the 715 cities and towns that meet or exceed the 50,000 population threshold, we conclude that approximately 88,761 are small. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES 2011, Tables 427, 426 (Data cited therein are from 2007).

_skip=600&-ds_name=EC0751SSSZ5&-_lang=en.

14. Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment." See U.S. Census Bureau, 2007 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing"; http://www.census.gov/naics/2007/def/ND334220.HTM#N334220. The SBA has developed a small business size standard for firms in this category, which is: all such firms having 750 or fewer employees. See 13 CFR 121.201, NAICS code 334220. According to Census Bureau data for 2010, there were a total of 810 establishments in this category that operated for the entire year.[2] Of this total, 787 had employment of fewer than 500, and an additional 23 had employment of 500 to 999.[3] Thus, under this size standard, the majority of firms can be considered small.

Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities:

[2] U.S. Census Bureau, American FactFinder, 2010 Economic Census, Industry Series, Industry Statistics by Employment Size, NAICS code 334220 (released June 26, 2012); http://factfinder.census.gov. The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the numbers of small businesses.

[3] Id. Eighteen establishments had employment of 1,000 or more.

15. Wireless providers must create and maintain a registration mechanism to allow Consumer Signal Booster operators to register their devices. In addition, on March 1, 2015 and March 1, 2016, the nationwide wireless providers must make public certain information regarding their consent for their subscribers to use Consumer Signal Boosters. Specifically, these wireless providers must publicly indicate their status regarding consent for each Consumer Signal Booster which has received FCC certification.

16. Consumer Signal Boosters must meet the Network Protection Standard with the following requirements: (1) comply with existing technical parameters (e.g., power and unwanted emissions) for the applicable spectrum band; (2) automatically self-monitor certain operations and shut down if not in compliance with our new technical rules; (3) automatically detect and mitigate oscillations in the uplink and downlink bands; (4) power down or shut down automatically when a device is not needed, such as when the device approaches the base station with which it is communicating; (5) be designed so that these features cannot be easily defeated; and (6) incorporate interference avoidance for wireless subsystems. In addition, Consumer Signal Boosters must comply with current RF exposure requirements. Consumers may continue to use existing signal boosters provided they (1) have the consent of their serving provider; and (2) register the booster with that provider.

17. The new rules also clarify that Industrial Signal Boosters require an FCC license or licensee consent to operate, must be appropriately labeled, and must comply with our current RF exposure requirements. Regarding part 90 Private Land Mobile Radio (PLMR), non-consumer signal boosters operated by licensees, the Commission revised its technical and operational requirements aimed at preventing interference. In addition, Part 90 Class B signal booster operators much register their devices with the Commission.

18. The Commission established a two-step transition process for equipment certification: (1) on the release date of this R&O, the Commission will no longer accept applications for equipment certification of Consumer or Industrial Signal Boosters that do not

comply with our new rules and will cease certification of devices that do not comply with our new rules; and (2) as of March 1, 2014, all Consumer and Industrial Signal Boosters sold and marketed in the United States must meet the new requirements.

Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered:

19. The RFA requires an agency to describe the steps it has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities was rejected.

20. With the exception of the Consumer Signal Booster consent reporting requirement, the projected reporting, recordkeeping, and other compliance requirements resulting from the R&O will apply to all entities in the same manner. The Commission believes that applying the same rules equally to all entities in this context promotes fairness. The Commission does not believe that the costs and/or administrative burdens associated with the rules will unduly burden small entities. The revisions the Commission adopts should benefit small entities by giving them more information for resolving instances of interference should it occur. Thus, for example, a small business experiencing interference in part 90 frequencies, which it suspects may be the result of a signal booster, may access the Commission's part 90 Class B signal booster registration tool and research any nearby Class B operators in an effort to stop the interference.

21. Regarding the reporting of wireless providers' consent to Consumer Signal Booster, this requirement only applies to nationwide wireless providers. The Commission concluded that it was appropriate to monitor provider behavior with respect to signal boosters. Specifically, in the event the Commission observes that providers are refusing to give timely and reasonable consideration to signal booster consent requests, it could take appropriate action including

measures such as vigorous investigation or revisiting the authorization mechanism for Consumer Signal Boosters. The Commission determined, however, that it would be able to obtain sufficient information in this regard while limiting the requirement to nationwide wireless providers. Thus, the Commission was able to minimize the impact of this requirement on small entities.

F. Report to Congress

22. The Commission will send a copy of the R&O in WT Docket No. 10-4, including the Final Regulatory Flexibility Analysis, in a report to be sent to Congress and the Congressional Budget Office pursuant to the Congressional Review Act. In addition, the Commission will send a copy of the R&O in WT Docket No. 10-4, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the SBA. A copy of the R&O in WT Docket No. 10-4 and the Final Regulatory Flexibility Analysis (or summaries thereof) will also be published in the Federal Register.

List of Subjects

47 CFR Part 1

Administrative practice and procedure, Communications common carriers, Telecommunications.

47 CFR Part 2

Frequency allocations and radio treaty matters.

47 CFR Part 20

Commercial mobile radio service.

47 CFR Part 22

Public mobile services.

47 CFR Part 24

Personal communications services.

47 CFR Part 27

Miscellaneous wireless communications services.

47 CFR Part 90

Private land mobile radio services.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch,
Secretary.

FINAL RULES

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 1, 2, 20, 22, 24, 27, and 90 as follows:

PART 1 – PRACTICE AND PROCEDURE

1. The authority citation for part 1 continues to read as follows:

Authority: 15 U.S.C. 79 et seq.; 47 U.S.C. 151, 154(i), 154(j), 155, 157, 225, 227, 303(r), and 309, the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, and 47 U.S.C. 1473.

2. Section 1.1307 is amended by adding a new entry to Table 1 below the existing row for Experimental Radio Services and above the existing row for Paging and Radiotelephone Service, and by revising the first sentence in (b)(2) to read as follows:

§ 1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

* * * * *

(b) * * *

(1) * * *

TABLE 1 – TRANSMITTERS, FACILITIES AND OPERATIONS SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

Service (title 47 CFR rule part)	Evaluation required if:
* * * *	* * *
Commercial Mobile Radio Services (part 20)	Non-building-mounted antennas: height above ground level to lowest point of antenna < 10 m and power > 1000 W ERP

	(1640 W EIRP). Building-mounted antennas: power > 1000 W ERP (1640 W EIRP). The Commercial Mobile Radio Services provisions in part 20 shall apply only if a label is affixed to the transmitting antenna that: (1) provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transmitting antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in §1.1310.
* * * *	* * *

(2) Mobile and portable transmitting devices that operate in the Commercial Mobile Radio Services pursuant to part 20 of this chapter; the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services pursuant to part 24 of this chapter; the

Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; and the Specialized Mobile Radio Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§ 2.1091 and 2.1093 of this chapter. * * *

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PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

3. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

4. Section 2.1091 is amended by revising the first sentence in paragraph (c) to read as follows:

§ 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.

* * * * *

(c) Mobile devices that operate in the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; and the Specialized Mobile Radio Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if they operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is

1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more. * * *

* * * * *

5. Section 2.1093 is amended by revising the first sentence in paragraph (c) to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: portable devices.

* * * * *

(c) Portable devices that operate in the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Maritime Services (ship earth station devices only) pursuant to part 80 of this chapter; and the Specialized Mobile Radio Service, the 4.9 GHz Band Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; the Wireless Medical Telemetry Service (WMTS) and the Medical Device Radiocommunication Service (MedRadio), pursuant to subparts H and I of part 95 of this chapter, respectively; and unlicensed personal communication service, unlicensed NII devices and millimeter wave devices authorized under 15.253(f), 15.255(g), 15.257(g), 15.319(i), and 15.407(f) of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use. * * *

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PART 20—COMMERCIAL MOBILE RADIO SERVICES

6. The authority citation for part 20 is revised to read as follows:

Authority: 47 U.S.C. 154, 160, 201, 251-254, 301-303 and 332 unless otherwise noted.

7. Add § 20.2 to read as follows:

§ 20.2 Other applicable rule parts.

Other FCC rule parts applicable to licensees in the commercial mobile radio services include the following:

(a) Part 1. This part includes rules of practice and procedure for license applications, adjudicatory proceedings, procedures for reconsideration and review of the Commission's actions; provisions concerning violation notices and forfeiture proceedings; competitive bidding procedures; and the environmental requirements that, together with the procedures specified in § 17.4(c) of this chapter, if applicable, must be complied with prior to the initiation of construction. Subpart F includes the rules for the Wireless Telecommunications Services and the procedures for filing electronically via the ULS.

(b) Part 2. This part contains the Table of Frequency Allocations and special requirements in international regulations, recommendations, agreements, and treaties. This part also contains standards and procedures concerning the marketing and importation of radio frequency devices, and for obtaining equipment authorization.

8. Section 20.3 is amended by adding definitions “Consumer Signal Booster”, “Fixed Consumer Signal Booster”, “Industrial Signal Booster”, “Mobile Consumer Signal Booster”, “Non-individual”, “Provider-Specific Consumer Signal Boosters”, “Signal booster”, “Signal booster operator”, and “Wideband Consumer Signal Boosters” in alphabetical order to read as follows:

§ 20.3 Definitions.

* * * * *

Consumer Signal Booster: A bi-directional signal booster that is marketed and sold to the general public for use without modification.

* * * * *

Fixed Consumer Signal Booster. A Consumer Signal Booster designed to be operated in a fixed location in a building.

* * * * *

Industrial Signal Booster: All signal boosters other than Consumer Signal Boosters.

* * * * *

Mobile Consumer Signal Booster. A Consumer Signal Booster designed to operate in a moving vehicle where both uplink and downlink transmitting antennas are at least 20 cm from the user or any other person.

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Non-individual. A non-individual is a partnership and each partner is eighteen years of age or older; a corporation; an association; a state, territorial, or local government unit; or a legal entity.

* * * * *

Provider-Specific Consumer Signal Boosters. Provider-Specific Consumer Signal Boosters may only operate on the frequencies and in the market areas of the specified licensee(s). Provider-Specific Consumer Signal Boosters may only be certificated and

operated with the consent of the licensee(s) whose frequencies are being amplified by the device.

* * * * *

Signal booster. A device that automatically receives, amplifies, and retransmits on a bi- or unidirectional basis, the signals received from base, fixed, mobile, or portable stations, with no change in frequency or authorized bandwidth.

* * * * *

Signal booster operator. The signal booster operator is the person or persons with control over the functioning of the signal booster, or the person or persons with the ability to deactivate it in the event of technical malfunctioning or harmful interference to a primary radio service.

* * * * *

Wideband Consumer Signal Boosters. Wideband Consumer Signal Boosters may operate on the frequencies and in the market areas of multiple licensees.

9. Add § 20.21 to read as follows:

§ 20.21 Signal boosters.

(a) Operation of Consumer Signal Boosters. A subscriber in good standing of a commercial mobile radio service system may operate a Consumer Signal Booster for personal use under the authorization held by the licensee providing service to the subscriber provided that the subscriber complies with paragraphs (a)(1) through (6).

Failure to comply with all applicable rules in this section and all applicable technical rules for the frequency band(s) of operation voids the authority to operate the Consumer Signal Booster.

(1) Prior to operation, the subscriber obtains the consent of the licensee providing service to the subscriber;

(2) Prior to operation, the subscriber registers the Consumer Signal Booster with the licensee providing service to the subscriber;

(3) The subscriber only operates the Consumer Signal Booster with approved antennas, cables, and/or coupling devices as specified by the manufacturer of the Consumer Signal Booster;

(4) The subscriber operates the Consumer Signal Booster on frequencies used for the provision of subscriber-based services under parts 22 (Cellular), 24 (Broadband PCS), 27 (AWS-1, 700 MHz Lower A-E Blocks, and 700 MHz Upper C Block), and 90 (Specialized Mobile Radio) of this chapter. Operation on part 90 (Specialized Mobile Radio) frequencies is permitted upon the Commission's release of a public notice announcing the date Consumer Signal Boosters may be used in the band;

(5) The Consumer Signal Booster complies with paragraphs (e), (f), (g), and (h) of this section and § 2.907 of this chapter; and

(6) The subscriber may not deactivate any features of the Consumer Signal Booster which are designed to prevent harmful interference to wireless networks. These features must be enabled and operating at all times the signal booster is in use.

(b) De minimis operation of Consumer Signal Boosters. A third party's incidental use of a subscriber's Consumer Signal Booster operated under this paragraph is de minimis and shall be authorized under the authorization held by the licensee providing service to the third party.

(c) Operation of Industrial Signal Boosters. An individual or non-individual, other than a representative of a foreign government, may operate an Industrial Signal Booster provided that the individual or non-individual:

(1) Has an FCC license or obtains the express consent of the licensee(s) whose frequencies are being retransmitted by the device on a regular basis, and

(2) Uses an Industrial Signal Booster which complies with paragraph (f) of this section.

(d) Operation on a secondary, non-interference basis. Operation of signal boosters under this section is on a secondary, non-interference basis to primary services licensed for the frequency bands on which they transmit, and to primary services licensed for the adjacent frequency bands that might be affected by their transmissions.

(1) The operation of signal boosters must not cause harmful interference to the communications of any primary licensed service.

(2) Upon request of an FCC representative or a licensee experiencing harmful interference, a signal booster operator must:

(i) Cooperate in determining the source of the interference, and

(ii) If necessary, deactivate the signal booster immediately, or as soon as practicable, if immediate deactivation is not possible.

(e) Consumer Signal Booster Network Protection Standard. (1) All Consumer Signal Boosters must incorporate features to prevent harmful interference to wireless networks including but not limited to those enumerated in this section.

(2) Certification requirements. (i) A Consumer Signal Booster can only be certificated and operated if it complies with all applicable rules in this subpart and all applicable technical rules for the frequency band(s) of operation including, but not limited to: § 22.355 of this chapter, Public Mobile Services, frequency tolerance; § 22.913 of this chapter, Cellular Radiotelephone Service effective radiated power limits; §22.917 of this chapter, Cellular Radiotelephone Service, emission limitations for cellular equipment; § 24.232 of this chapter, Broadband Personal Communications Service, power and antenna height limits; § 24.238 of this chapter, Broadband Personal Communications Service, emission limitations for Broadband PCS equipment; § 27.50 of this chapter, Miscellaneous Wireless Communications Services, power and antenna height limits; § 27.53 of this chapter, Miscellaneous Wireless Communications Services, emission limits; § 90.205 of this chapter, Private Land Mobile Radio Services, power and antenna height limits; § 90.210 of this chapter, Private Land Mobile Radio Services, emission masks; and § 90.247 of this chapter, Private Land Mobile Radio Services, mobile repeater stations.

(ii) In case of any conflict between the rules set forth in this section and the rules set forth in parts 22, 24, 27, and 90 of title 47, chapter I of the Code of Federal Regulations, the rules in this section shall govern.

(iii) The application for certification must satisfy the Commission that the Consumer Signal Boosters' features designed to prevent harmful interference and protect wireless networks cannot be easily defeated and must be enabled at all times.

(3) Frequency Bands. Consumer Signal Boosters must be designed and manufactured such that they only operate on the frequencies used for the provision of subscriber-based services under parts 22 (Cellular), 24 (Broadband PCS), 27 (AWS-1, 700 MHz Lower A-E Blocks, and 700 MHz Upper C Block), and 90 (Specialized Mobile Radio) of this chapter. The Commission will not certificate any Consumer Signal Boosters for operation on part 90 of this chapter (Specialized Mobile Radio) frequencies until the Commission releases a public notice announcing the date Consumer Signal Boosters may be used in the band.

(4) Self-monitoring. Consumer Signal Boosters must automatically self-monitor their operation to ensure compliance with applicable noise and gain limits and either self-correct or shut down automatically if their operation exceeds those parameters.

(5) Anti-oscillation. Consumer Signal Boosters must be able to detect and mitigate any unintended oscillations in uplink and downlink bands (such as may result from insufficient isolation between the antennas).

(6) Power Down. Consumer Signal Boosters must automatically power down or cease amplification as they approach any affected base station.

(7) Interference Avoidance for Wireless Subsystems. Consumer Signal Boosters using unlicensed (part 15 of this chapter) or other frequency bands for wireless transmissions between donor and server subsystems for their internal operations must employ interference avoidance methods to prevent interference transmitted into authorized CMRS spectrum bands.

(8) Wideband Consumer Signal Boosters. A Wideband Consumer Signal Booster will meet the Consumer Signal Booster Network Protection Standard if it complies with paragraphs (e)(1) through (e)(7) of this section and the following:

(i) Technical Requirements.

(A) Noise Limits. (1) The transmitted noise power in dBm/MHz of consumer boosters at their uplink and downlink ports shall not exceed -103 dBm/MHz - RSSI.

Where RSSI (received signal strength indication) is the downlink composite received signal power in dBm at the booster donor port for all base stations in the band of operation. RSSI is expressed in negative dB units relative to 1 mW.

(2) The transmitted maximum noise power in dBm/MHz of consumer boosters at their uplink and downlink ports shall not exceed the following limits:

(i) Fixed booster maximum noise power shall not exceed -102.5 dBm/MHz + 20 Log_{10} (Frequency), where Frequency is the uplink mid-band frequency of the supported spectrum bands in MHz.

(ii) Mobile booster maximum noise power shall not exceed - 59 dBm/MHz.

(iii) Compliance with Noise limits will use instrumentation calibrated in terms of RMS equivalent voltage, and with booster input ports terminated or without input signals applied within the band of measurement.

(B) Bidirectional Capability. Consumer Boosters must be able to provide equivalent uplink and downlink gain and conducted uplink power output that is at least 0.05 watts. One-way consumer boosters (i.e., uplink only, downlink only, uplink impaired, downlink impaired) are prohibited. Spectrum block filtering may be used provided the uplink filter attenuation is not less than the downlink filter attenuation, and where RSSI is measured after spectrum block filtering is applied referenced to the booster's input port for each band of operation.

(C) Booster Gain Limits. (1) The uplink gain in dB of a consumer booster referenced to its input and output ports shall not exceed -34 dB - RSSI + MSCL.

(i) Where RSSI is the downlink composite received signal power in dBm at the booster donor port for all base stations in the band of operation. RSSI is expressed in negative dB units relative to 1 mW.

(ii) Where MSCL (Mobile Station Coupling Loss) is the minimum coupling loss in dB between the wireless device and input port of the consumer booster. MSCL must be calculated or measured for each band of operation and provided in compliance test reports.

(2) The uplink and downlink maximum gain of a Consumer Booster referenced to its input and output ports shall not exceed the following limits:

(i) Fixed Booster maximum gain shall not exceed 6.5 dB + 20 Log_{10} (Frequency)

(ii) Where, Frequency is the uplink mid-band frequency of the supported spectrum bands in MHz.

(iii) Mobile Booster maximum gain shall not exceed 50 dB when using an inside antenna (e.g., inside a vehicle), 23 dB when using direct contact coupling (e.g., cradle-type boosters), or 15 dB when directly connected (e.g., boosters with a physical connection to the phone).

(D) Power Limits. A booster's uplink power must not exceed 1 watt composite conducted power and equivalent isotropic radiated power (EIRP) for each band of operation. Composite downlink power shall not exceed 0.05 watt (17 dBm) conducted and EIRP for each band of operation. Compliance with power limits will use instrumentation calibrated in terms of RMS equivalent voltage.

(E) Out of Band Emission Limits. Booster out of band emissions (OOBE) shall be at least 6 dB below the FCC's mobile emission limits for the supported bands of operation. Compliance to OOBE limits will utilize high peak-to-average CMRS signal types.

(F) Intermodulation Limits. The transmitted intermodulation products of a consumer booster at its uplink and downlink ports shall not exceed the power level of -19 dBm for the supported bands of operation. Compliance with intermodulation limits will use boosters operating at maximum gain and maximum rated output power, with two continuous wave (CW) input signals spaced 600 kHz apart and centered in the pass band of the booster, and with a 3 kHz measurement bandwidth.

(G) Booster Antenna Kitting. All consumer boosters must be sold with user manuals specifying all antennas and cables that meet the requirements of this section. All consumer boosters must be sold together with antennas, cables, and/or coupling devices that meet the requirements of this section. The grantee is required to submit a technical document with the application for FCC equipment authorization that shows compliance of all antennas, cables and/or coupling devices with the requirements of this section, including any antenna or equipment upgrade options that may be available at initial purchase or as a subsequent upgrade.

(H) Transmit Power Off Mode. When the consumer booster cannot otherwise meet the noise and gain limits defined herein it must operate in "Transmit Power OFF Mode." In this mode of operation, the uplink and downlink noise power shall not exceed -70 dBm/MHz and uplink gain shall not exceed the lesser of 23 dB or MSCL.

(I) Uplink Inactivity. When a consumer booster is not serving an active device connection after 5 minutes the uplink noise power shall not exceed -70 dBm/MHz.

(ii) Interference Safeguards. Consumer boosters must include features to prevent harmful interference including, at a minimum, those enumerated in this subsection. These features may not be deactivated by the operator and must be enabled and operating at all times the signal booster is in use.

(A) Anti-Oscillation. Consumer boosters must be able to detect and mitigate (i.e., by automatic gain reduction or shut down), any oscillations in uplink and downlink bands. Oscillation detection and mitigation must occur automatically within 0.3 seconds in the uplink band and within 1 second in the downlink band. In cases where oscillation is detected, the booster must continue mitigation for at least one minute before restarting. After five such restarts, the booster must not resume operation until manually reset.

(B) Gain Control. Consumer boosters must have automatic limiting control to protect against excessive input signals that would cause output power and emissions in excess of that authorized by the Commission.

(C) Interference Avoidance for Wireless Subsystems. Consumer boosters using unlicensed (part 15) or other frequency bands for wireless transmissions between donor and server subsystems for its internal operations must employ interference avoidance methods to prevent interference transmitted into authorized CMRS spectrum bands and must meet applicable limits for radiofrequency exposure.

(9) Provider-Specific Consumer Signal Boosters. A Provider-Specific Consumer Signal Booster will meet the Consumer Signal Booster Network Protection Standard if it complies with paragraphs (e)(1) through (e)(7) of this section and the following:

(i) Technical Requirements.

(A) Noise Limits. The transmitted noise power in dBm/MHz of frequency selective consumer boosters outside the licensee's spectrum blocks at their uplink and downlink ports shall not exceed the following limits:

(1) -103 dBm/MHz - RSSI

(i) Where RSSI is the downlink composite signal power received in dBm for frequencies in the band of operation outside the licensee's spectrum block as measured after spectrum block filtering is applied and is referenced to the booster's donor port for each band of operation. RSSI is expressed in negative dB units relative to 1 mW.

(ii) Boosters with MSCL less than 40 dB, shall reduce the Noise output in (A) by 40 dB - MSCL, where MSCL is the minimum coupling loss in dB between the wireless device and booster's server port. MSCL must be calculated or measured for each band of operation and provided in compliance test reports.

(2)(i) Maximum downlink noise power shall not exceed -102.5 dBm/MHz + 20 Log_{10} (Frequency), where Frequency is the uplink mid-band frequency of the supported spectrum bands in MHz.

(ii) Compliance with Noise limits will use instrumentation calibrated in terms of RMS equivalent voltage, and with booster input ports terminated or without input signals applied within the band of measurement.

(B) Bidirectional Capability. Consumer Boosters must be able to provide equivalent uplink and downlink gain and conducted uplink power output that is at least 0.05 watts. One-way consumer boosters (i.e., uplink only, downlink only, uplink impaired, downlink impaired) are prohibited. Spectrum block filtering used must provide uplink filter attenuation not less than the downlink filter attenuation, and where RSSI is measured after spectrum block filtering is applied referenced to the booster's input port for each band of operation.

(C) Booster Gain Limits. The gain of the frequency selective consumer booster shall meet the limits below.

(1) The uplink and downlink gain in dB of a frequency selective consumer booster referenced to its input and output ports shall not exceed BSCL – 28 dB - (40 dB – MSCL).

(i) Where BSCL is the coupling loss between the booster's donor port and the base station's input port, and MSCL is the minimum coupling loss in dB between the wireless device and the booster's server port. MSCL must be calculated or measured for each band of operation and provided in compliance test reports.

(ii) In order of preference, BSCL is determined as follows: determine path loss between the base station and the booster; such measurement shall be based on measuring the received forward pilot/control channel power at the booster and reading the pilot/control channel transmit power from the base station as defined in the system information messages sent by the base station; estimate BSCL by assuming that the base station is transmitting at a level of +25 dBm per channel (assume a small, lightly loaded cell) and measuring the total received signal power level within the channel in dBm (RPCH) received at the booster input port. BSCL is then calculated as 25 - RPCH; or assume that the BSCL is 70 dB without performing any measurement.

(2) The uplink and downlink maximum gain of a frequency selective consumer booster referenced to its input and output ports shall not exceed 19.5 dB + 20 Log (Frequency), or 100 dB for systems having automatic gain adjustment based on isolation measurements between booster donor and server antennas.

Where, Frequency is the uplink mid-band frequency of the supported spectrum bands in MHz.

(D) Power Limits. A booster's uplink power must not exceed 1 watt composite conducted power and equivalent isotropic radiated power (EIRP) for each band of operation. Downlink power shall not exceed 0.05 watt (17 dBm) composite and 10 dBm per channel conducted and EIRP for each band of operation. Compliance with power limits will use instrumentation calibrated in terms of RMS equivalent voltage.

(E) Out of Band Gain Limits. (1) A frequency selective booster shall have the following minimum attenuation referenced to the gain in the center of the pass band of the booster:

(i) -20 dB at the band edge, where band edge is the end of the licensee's allocated spectrum,

(ii) -30 dB at 1 MHz offset from band edge,

(iii) -40 dB at 5 MHz offset from band edge.

(2) A frequency selective booster having maximum gain greater than 80 dB (referenced to the center of the pass band) shall limit the out of band gain to 60 dB at 0.2 MHz offset from the band edge, and 45 dB at 1 MHz offset from the band edge, where band edge is the end of the licensee's allocated spectrum.

(F) Out of Band Emission Limits. Booster out of band emissions (OOBE) shall meet the FCC's mobile emission limits for the supported bands of operation. Compliance to OOBE limits will utilize high peak-to-average CMRS signal types.

(G) Intermodulation Limits. The transmitted intermodulation products of a consumer booster at its uplink and downlink ports shall not exceed the power level of -19 dBm for the supported bands of operation. Compliance with intermodulation limits will use boosters operating at maximum gain and maximum rated output power, with two continuous wave (CW) input signals spaced 600 kHz apart and centered in the pass band of the booster, and with a 3 kHz measurement bandwidth.

(H) Booster Antenna Kitting. All consumer boosters must be sold with user manuals specifying all antennas and cables that meet the requirements of this section. Mobile consumer boosters must be sold together with antennas, cables, and/or coupling devices that meet the requirements of this section. The grantee is required to submit a technical document with the application for FCC equipment authorization that shows compliance of all antennas, cables, and/or coupling devices with the requirements of this section, including any antenna or equipment upgrade options that may be available at initial purchase or as a subsequent upgrade.

(I) Transmit Power Off Mode. When the consumer booster cannot otherwise meet the noise and gain limits defined herein it must operate in “Transmit Power OFF Mode.” In this mode of operation, the uplink and downlink noise power shall not exceed -70 dBm/MHz and uplink gain shall not exceed the lesser of 23 dB or MSCL.

(J) Uplink Inactivity. When a consumer booster is not serving an active device connection after 5 seconds the uplink noise power shall not exceed -70 dBm/MHz.

(ii) Interference Safeguards. Consumer boosters must include features to prevent harmful interference including, at a minimum, those enumerated in this subsection. These features may not be deactivated by the operator and must be enabled and operating at all times the signal booster is in use.

(A) Anti-Oscillation. Consumer boosters must be able to detect and mitigate (*i.e.*, by automatic gain reduction or shut down), any oscillations in uplink and downlink bands. Oscillation detection and mitigation must occur automatically within 0.3 seconds in the uplink band and within 1 second in the downlink band. In cases where oscillation is detected, the booster must continue mitigation for at least one minute before restarting. After five such restarts, the booster must not resume operation until manually reset.

(B) Gain Control. Consumer boosters must have automatic limiting control to protect against excessive input signals that would cause output power and emissions in excess of that authorized by the Commission.

(C) Interference Avoidance for Wireless Subsystems. Consumer boosters using unlicensed (part 15) or other frequency bands for wireless transmissions between donor and server subsystems for its internal operations must employ interference avoidance methods to prevent interference transmitted into authorized CMRS spectrum bands.

(10) Equivalent Protections. Consumer Signal Boosters which do not meet the technical specifications enumerated in paragraphs (e)(1) through (e)(9) of this section may also meet the

Network Protection Standard if they provide equivalent protections as determined by the Wireless Telecommunications Bureau.

(f) Signal booster labeling requirements. (1) Signal booster manufacturers, distributors, and retailers must ensure that all signal boosters marketed on or after March 1, 2014 include the following advisories:

(1) In on-line, point-of-sale marketing materials,

(2) In any print or on-line owner's manual and installation instructions,

(3) On the outside packaging of the device, and

(4) On a label affixed to the device:

(i) For Consumer Signal Boosters:

This is a CONSUMER device.

BEFORE USE, you MUST REGISTER THIS DEVICE with your wireless provider and have your provider's consent. Most wireless providers consent to the use of signal boosters. Some providers may not consent to the use of this device on their network. If you are unsure, contact your provider.

You MUST operate this device with approved antennas and cables as specified by the manufacturer. Antennas MUST be installed at least 20 cm (8 inches) from any person.

You MUST cease operating this device immediately if requested by the FCC or a licensed wireless service provider.

WARNING. E911 location information may not be provided or may be inaccurate for calls served by using this device.

(ii) For Industrial Signal Boosters:

WARNING. This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of $100,000 for each continuing violation.

(2) A Consumer Signal Booster label may contain an acknowledgement that particular provider(s) have given their consent for all consumers to use the device. Such an acknowledgement would be inserted prior to, "Some wireless providers may not consent to the use of this device on their network. If you are unsure, contact your provider." The remaining language of the advisory shall remain the same.

(g) Marketing and sale of signal boosters. Except as provided in § 2.803 of this chapter, no person, manufacturer, distributor, or retailer may market, distribute or offer for sale or lease any Consumer Signal Booster that does not comply with the requirements of this section to any person in the United States or to any person intending to operate the Consumer Signal Booster within the United States at any time on or after March 1, 2014. Consumer Signal Boosters may only be sold to members of the general public for their personal use.

(h) Registration. Each licensee consenting to the operation of a Consumer Signal Booster must establish a free registration mechanism for subscribers and register all Consumer Signal Boosters to which it consents. A licensee must establish a registration

mechanism by the later of March 1, 2014 or within 90 days of consenting to the operation of a Consumer Signal Booster. At a minimum, a licensee must collect:

(1) The name of the Consumer Signal Booster owner and/or operator, if different individuals;

(2) The make, model, and serial number of the device;

(3) The location of the device; and

(4) The date of initial operation. Licensee consent is voluntary and may be withdrawn at the licensee's discretion.

PART 22—PUBLIC MOBILE SERVICES

10. The authority citation for part 22 continues to read as follows:

Authority: 47 U.S.C. 154, 222, 303, 309, and 332.

11. Add § 22.9 to read as follows:

§ 22.9 Operation of certificated signal boosters.

Individuals and non-individuals may operate certificated Consumer Signal Boosters on frequencies regulated under this part provided that such operation complies with all applicable rules under this part and § 20.21 of this chapter. Failure to comply with all applicable rules voids the authority to operate a signal booster.

PART 24—PERSONAL COMMUNICATION SERVICES

12. The authority citation for part 24 continues to read as follows:

Authority: 47 U.S.C. 154, 301, 302, 303, 309, and 332.

13. Add § 24.9 to subpart A to read as follows:

§ 24.9 Operation of certificated signal boosters.

Individuals and non-individuals may operate certificated Consumer Signal Boosters on frequencies regulated under this part provided that such operation complies with all applicable rules under this part and § 20.21 of this chapter. Failure to comply with all applicable rules voids the authority to operate a signal booster.

PART 27—MISCELLANEOUS WIRELESS COMMUNICATION SERVICES

14. The authority citation for part 27 continues to read as follows:

Authority: 47 U.S.C. 154, 301, 302, 303, 307, 309, 332, 336, and 337 unless otherwise noted.

15. Add § 27.9 to subpart A to read as follows:

§ 27.9 Operation of certificated signal boosters.

Individuals and non-individuals may operate certificated Consumer Signal Boosters on frequencies regulated under this part provided that such operation complies with all applicable rules under this part and § 20.21 of this chapter. Failure to comply with all applicable rules voids the authority to operate a signal booster.

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

16. The authority citation for part 90 continues to read as follows:

Authority: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7), and Title VI of the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, 126 Stat. 156.

17. In § 90.7 add the definition for “Signal amplifier” in alphabetical order to read as follows:

§ 90.7 Definitions.

* * * * *

Signal amplifier. A device that amplifies radio frequency signals and is connected to a mobile radio transceiver, portable or handset, typically to the antenna connector. Note that a signal amplifier is not the same thing as a signal booster.

* * * * *

18. Add paragraph (q) to § 90.203 to read as follows:

§ 90.203 Certification required.

* * * * *

(q) Certification requirements for signal boosters are set forth in § 90.219.

19. Revise § 90.219 to read as follows:

§ 90.219 Use of signal boosters.

This section contains technical and operational rules allowing the use of signal boosters in the Private Land Mobile Radio Services (PLMRS). Rules for signal booster operation in the Commercial Mobile Radio Services under part 90 are found in § 20.21 of this chapter.

(a) Definitions. The definitions in this paragraph apply only to the rules in this section.

Class A signal booster. A signal booster designed to retransmit signals on one or more specific channels. A signal booster is deemed to be a Class A signal booster if none of its passbands exceed 75 kHz.

Class B signal booster. A signal booster designed to retransmit any signals within a wide frequency band. A signal booster is deemed to be a Class B signal booster if it has a passband that exceeds 75 kHz.

Coverage area of a PLMRS station. All locations within the normal reliable operating range

(service contour) of a PLMRS station.

Deploy a signal booster. Install and/or initially adjust a signal booster.

Distributed Antenna System (DAS). A network of spatially separated antenna nodes connected to a common source via a transport medium that provides wireless service within a geographic area or structure.

Operate a signal booster. Maintain operational control over, and responsibility for the proper functioning of, a signal booster.

Signal booster. A device or system that automatically receives, amplifies, and retransmits signals from wireless stations into and out of building interiors, tunnels, shielded outdoor areas and other locations where these signals would otherwise be too weak for reliable communications. Signal booster systems may contain both Class A and Class B signal boosters as components.

(b) Authority to operate. PLMRS licensees for stations operating on assigned channels higher than 150 MHz may operate signal boosters, limited to the service band for which they are authorized, as needed anywhere within the PLMRS stations' service contour, but may not extend the stations' service contour.

(1) PLMRS licensees may also consent to operation of signal boosters by non-licensees (such as a building owner or a signal booster installation contractor) within their service contour and across their applicable frequencies, but must maintain a reasonable level of control over these operations in order to resolve interference problems.

(i) Non-licensees seeking to operate signal boosters must obtain the express consent of the licensee(s) of the frequencies for which the device or system is intended to amplify. The consent must be maintained in a recordable format that can be presented to an FCC representative or other relevant licensee investigating interference.

(ii) Consent is not required from third party (unintended) licensees whose signals are incidentally retransmitted. However, signal booster operation is on a non-interference basis and

operations may be required to cease or alter the operating parameters due to a request from an FCC representative or a licensee's request to resolve interference.

(2) [Reserved]

(c) Licensee responsibility; interference. PLMRS licensees that operate signal boosters are responsible for their proper operation, and are responsible for correcting any harmful interference that signal booster operation may cause to other licensed communications services. Normal co-channel transmissions are not considered to be harmful interference. Licensees are required to resolve interference problems pursuant to § 90.173(b). Licensees shall act in good faith regarding the operation of signal boosters and in the resolution of interference due to signal booster operation. Licensees who are unable to determine the location or cause of signal booster interference may seek assistance from the FCC to resolve such problems.

(d) Deployment rules. Deployment of signal boosters must be carried out in accordance with the rules in this paragraph.

(1) Signal boosters may be used to improve coverage in weak signal areas only.

(2) Signal boosters must not be used to extend PLMRS stations' normal operating range.

(3) Signal boosters must be deployed such that the radiated power of the each retransmitted channel, on the forward link and on the reverse link, does not exceed 5 Watts effective radiated power (ERP).

(4) Class B signal boosters may be deployed only at fixed locations; mobile operation of Class B signal boosters is prohibited after November 1, 2014.

(5) Class B signal booster installations must be registered in the FCC signal booster database that can be accessed at the following URL: www.fcc.gov/signal-boosters/registration.

(6) Good engineering practice must be used in regard to the radiation of intermodulation products and noise, such that interference to licensed communications systems is avoided. In the event of harmful interference caused by any given deployment, the FCC may require additional attenuation or filtering of the emissions and/or noise from signal boosters or signal booster

systems, as necessary to eliminate the interference.

(i) In general, the ERP of intermodulation products should not exceed –30 dBm in 10 kHz measurement bandwidth.

(ii) In general, the ERP of noise within the passband should not exceed –43 dBm in 10 kHz measurement bandwidth.

(iii) In general, the ERP of noise on spectrum more than 1 MHz outside of the passband should not exceed –70 dBm in a 10 kHz measurement bandwidth.

(7) Signal booster passbands are limited to the service band or bands for which the operator is authorized. In general, signal boosters should utilize the minimum passband that is sufficient to accomplish the purpose. Except for distributed antenna systems (DAS) installed in buildings, the passband of a Class B booster should not encompass both commercial services (such as ESMR and Cellular Radiotelephone) and part 90 Land Mobile and Public Safety Services.

(e) Device Specifications. In addition to the general rules for equipment certification in § 90.203(a)(2) and part 2, subpart J of this chapter, a signal booster must also meet the rules in this paragraph.

(1) The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP for each retransmitted channel.

(2) The noise figure of a signal booster must not exceed 9 dB in either direction.

(3) Spurious emissions from a signal booster must not exceed –13 dBm within any 100 kHz measurement bandwidth.

(4) A signal booster must be designed such that all signals that it retransmits meet the following requirements:

(i) The signals are retransmitted on the same channels as received. Minor departures from the exact provider or reference frequencies of the input signals are allowed, provided that the retransmitted signals meet the requirements of § 90.213.

(ii) There is no change in the occupied bandwidth of the retransmitted signals.

(iii) The retransmitted signals continue to meet the unwanted emissions limits of § 90.210 applicable to the corresponding received signals (assuming that these received signals meet the applicable unwanted emissions limits by a reasonable margin).

(5) On or after March 1, 2014, a signal booster must be labeled to indicate whether it is a Class A or Class B device, and the label must include the following advisory

(1) In on-line point-of-sale marketing materials,

(2) In any print or on-line owner's manual and installation instructions,

(3) On the outside packaging of the device, and

(4) On a label affixed to the device:

> "WARNING. This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to operate this device. You MUST register Class B signal boosters (as defined in 47 CFR 90.219) online at www.fcc.gov/signal-boosters/registration. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of $100,000 for each continuing violation."

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